# Synchronizing incoming DVB subtitles to re-encoded video streams at turnaround digital broadcast sites

APPLICATION NOTE

## This application note describes how broadcasters can preserve subtitle data and ensure accuracy of timing when re-encoding transport streams.

Broadcasters and network operators often dynamically transcode incoming video services from one format to another. For example, taking an MPEG-2 stream from a satellite feed and re-encoding in MPEG-4 for local distribution on digital terrestrial (DTT). This process is known as a 'turnaround' service. The challenge for broadcasters is to preserve the subtitle content present in the incoming stream and ensure that re-transmission is correctly timed with the video. This timing needs to take account of the delay introduced in the re-encoding process which, although relatively short, is enough to cause subtitles to become misaligned.

### The Solution

To overcome this issue, Softel Swift TX from Grass Valley, a Belden Brand, can be used to take the incoming ASI or Gigabit Ethernet (GigE) transport stream containing the subtitle content — for example, DVB bitmaps. The unit will then store the packets for a configurable delay, typically one to one and a half seconds, relaying them to DTT multiplexer for retransmission.

### Ensuring Correct Timing

As ensuring correct timing is essential, Swift TX uses Presentation Time Stamp (PTS) values that correspond to Program Clock Reference (PCR) feedback signals from the video. The PTS is used to correctly time the output of the delayed subtitle packets. The output of the subtitle content can also be across ASI and/or GigE.
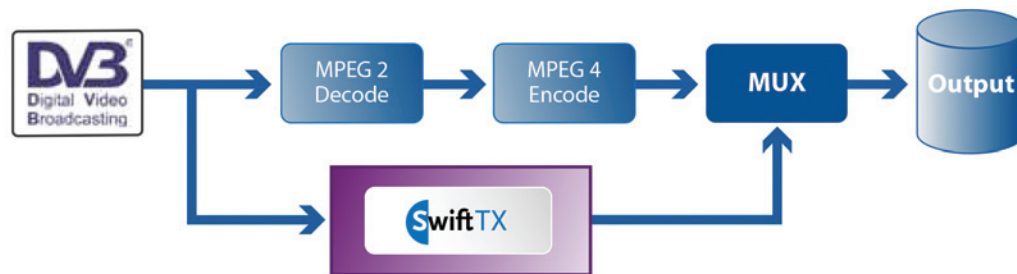


### Multichannel Support and High Availability

The Swift TX subtitle re-synchronizing solution easily scales across multiple channels. Subtitle services may be decoded from either ASI or GigE IP transport stream inputs. In addition, the solution utilizes highly reliable rackmount Windows server hardware and caters to high-availability applications, with additional Swift TX units in switchable N+1 configurations. This configuration can be tailored to suit the specific master/standby capabilities of the main compression equipment.

grass valley
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